For the determination of the volume of CO, which is obtained from 1 kilogramme C, the quantity of gas 22*3 cubic metres which contains 12 kilogrammes C is used, and thus there is yielded— = 1'86 cubic metre CO . . . (9). To this there belongsN=3*762 x => x 1'86 = 3-5 cubic metres N,and 2* £ the total quantity of air gas at 0° and 760 millimetres per 1 kilogramme C amounts to 1*86 cubic metre CO+3'50 cubic metres N=5*36 cubic metres air-gas . . . (10).

(c) SIMULTANEOUS FORMATION OF C02 AND CO IN THE COMBUSTION OF C BY MEANS OF Am.

If the combustion of pure carbon by means of air happens in the manner that simultaneously COa and CO are present, the N content will be determined by the formula . . . (11),

as given by the simple addition of formulae (3) and (8).

In similar manner, one derives the total volume V as being : —

V=C02+CO+8-762

(d) GASIFICATION OF PURE C BY MEANS OF STEAM.

Water-vapour is, in definite ratios (to be discussed in detail later on), able to attack carbon and gasify it. Water, as is well known, results from the union of hydrogen and oxygen according to the equation

2H+0=H20

whereby 2 kilogrammes H with 16 kilogrammes 0 forms 18 kilogrammes water.

The water appears on its formation at first in the form of steam, and in this form only can it be employed for the gasification of carbon. The calculable weight of a cubic* metre of water-vapour referred to a basis of 0° and 760 millimetres has been estimated at 0*8051 kilogramme, whilst 1 cubic metre H under equal conditions weighs 0'0899 kilogramme.